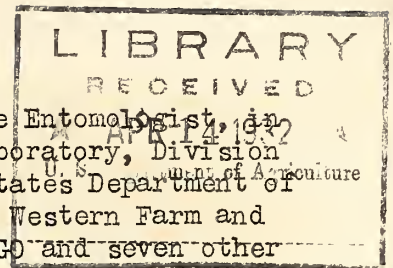


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SPRING WIREWORM CONTROL:



A radio talk prepared by M. C. Lane, Associate Entomologist, in charge, Walla Walla, Washington, Soil Insect Field Laboratory, Division of Truck-Crop Insects, Bureau of Entomology, United States Department of Agriculture, and delivered by Bobb Nichols during the Western Farm and Home Hour Thursday, March 24, 1932, through Station KGO and seven other stations associated with the NBC-KGO network, Pacific Division, National Broadcasting Company.

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With the coming of spring in the Pacific Northwest, it is time to consider what should be done this season towards the control of wireworms. These perennial pests of garden and field crops have been passing the winter in the soil from 3 to 12 inches deep. It never gets cold enough at this depth in the soil to freeze them; therefore, very few wireworms are found deeper than the surface foot. There are two stages of wireworms present in the soil at this time, the wireworms or larvae of various sizes or ages, and the adult beetles waiting for the warm days of April and May to bring them out for mating and egg laying. In this talk we are mainly interested only in the wireworm itself. These bright yellow, hard-shelled worms will move towards the surface of the soil as soon as the frost is gone -- and are they hungry? Wouldn't you be hungry if you went without food for about five months and in some cases for eight months? These long periods of going without food each year is one of the reasons for the long life history of wireworms. It takes on the average about four years for an individual wireworm to complete one life cycle. Because of their subterranean habits wireworms are particularly free from prodaceous or parasitic enemies. Very little help can be expected from these sources in controlling them. The control of wireworms is one of the most difficult problems in entomological science. However, some progress has been made in recent years through research conducted by the Bureau of Entomology and a few practical control methods have been worked out. As this study continues and a better knowledge of the habits of wireworms is obtained, other and cheaper control methods should be discovered. Control methods for wireworms in the Pacific Northwest will have to be discussed in two parts on basis of different types of farming and different species of wireworms.

First, we will discuss the control of the Great Basin Wireworm in the dry-farmed wheat areas of Eastern Washington, Eastern Oregon, and Southern Idaho. This wireworm is costing the farmers of the Pacific Northwest millions of dollars yearly in those areas receiving less than 15 inches of precipitation annually. This pest seriously cuts down the stand of both winter and spring grain in the early spring. Damage from this wireworm is especially noticeable in a year with a long cold spring and severe winter injury to the fall-sown grain.

This particular Great Basin wireworm feeds only during March, April, and May, or as long as the temperature remains relatively cool, and there is moisture in the surface soil. Wireworms of this species are fairly evenly distributed in the soil of the grainfields over all the area infested. To be sure, damage sometimes becomes apparent in spots, but this is because conditions of soil temperature, moisture, or texture are generally more favorable in these places for the wireworm to work and kill the
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stand of grain.

Absolutely clean summer fallow is the only efficient control for the Great Basin wireworm. It's long life, together with it's ability to withstand drought and starvation, makes this pest hard to control, once it gets started. The vital time in its life history is during the first summer after hatching from the egg. At this time it must have growing, succulent rootlets of grain or weeds to survive. A brood is being hatched each year. It is, therefore, essential that clean summer fallowing be practiced conscientiously year after year. A weedy summer fallow for only one season will usually result in damage from wireworms for several years. Clean summer fallow means the killing out of every weed during the whole season. Other farm practices that help to prevent damage from wireworms are: first, do not harrow winter wheat in the spring; second, treat seed with dry copper carbonate to prevent smut; and third, use seed enough in the spring to allow for some thinning by wireworms.

Remember that weeds in your summer fallow this summer may mean heavy loss by wireworms next spring and for several succeeding crops as well. For further information, procure Farmers' Bulletin No. 1657, The Great Basin Wireworm in the Pacific Northwest. Copies may be secured by request to this station, or by writing to your State Agricultural Experiment Station.

The second portion of our discussion will deal with two species of wireworms that do damage to truck and garden crops over all the Pacific Northwestern states, especially on the irrigated lands. We will call these pests the California wireworm and the Pacific wireworm. They attack the underground portions of practically every vegetable crop grown; potatoes, onions, lettuce, corn, and melons suffering the most damage. These wireworms have been increasing in numbers during the recent years until there are now as many as 250,000 wireworms per acre on the average over considerable areas of the best farm lands. Damage by these wireworms is of two distinct types. First, during the early part of the season newly planted seed is destroyed and the tender stems of young plants are cut off by the pests. Second, during the late summer, the underground portions of maturing root and bulb crops are tunneled and fed upon. This later season damage is by far the most serious, since it represents a loss which can not be overcome by replanting or rotation. After a whole season's work the product may be rendered unmarketable and entirely worthless, except possibly as stock feed.

Direct control measures for these wireworms are few and expensive. On very small tracts of high priced vegetables, bulbs, or nursery stock, wireworms can be eradicated by fumigation of the soil with carbon disulphide. This material, placed at the rate of one liquid ounce in holes four inches deep and twenty-four inches apart each way, will eliminate wireworms and all other soil-infesting insects. This treatment, however, must precede the planting of a crop or be done between crops as it is also very injurious to any growing plants. Two weeks is sufficient time to allow after treatment before planting a new crop.

Control measures along the line of cultural practices that are applicable to irrigation methods in the Pacific Northwest are very few. A rotation of six years in which four years of alfalfa is followed by a cash crop seems to be the logical practice to follow at present. Four seasons of alfalfa reduces the infestation of wireworms sufficiently in some cases so that a cash crop can be grown with little danger of damage. Sometimes two years of comparative freedom from wireworms can be obtained in this way. Some farmers have procured immunity from wireworm damage after plowing under a crop of green manure, such as alfalfa or rye. Experiments are under way to try to find cheaper methods of direct control and to make an extensive study of farm practices in all their relations to wireworm development and activities in the Pacific Northwest.

For further information concerning the treatment of soil with carbon disulphide, send for Mimeograph Circular No. E-293, Carbon disulphide as a Control for Wireworms in the Pacific Northwest, by either writing to this station or your State Experiment Station,

